



2009594

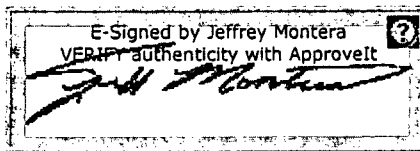
Please add the following items to your Record of Deviation/Request for Modification Forms for the Contaminant Screening Study Sampling and Analysis Plan folder.

- Table of Contents – Revision 3 (11/27/02)
- Modification No 000062 – Change to Soil Sample Preparation Method

ADMINISTRATIVE
RECORD

If you have any questions, please feel free to contact me.

Thanks,



Jeff Monterá

720-264-1116

monterajg@cdm.com

Table of Contents

Modification No.	Description of Deviation	Date Issued	Applicable CSS Section
000032	<i>Change to IFF (version 2) and IFF Completion Guidance Documents</i>	6/10/02	<i>Appendix C – Site Specific Guidance Document, CSS Primary Structure IFF, CDM-LIBBY-04</i>
000033	<i>Change to Index ID Numbering Procedure</i>	6/10/02	<i>Section 5.4.4</i>
000034	<i>Changes to IFF Completion Procedure</i>	6/10/02	<i>Section 4.3.3.1, 4.3.3.3, Figure 4</i>
000035	<i>Change to Rinsates Procedure</i>	6/10/02	<i>Section 7.1</i>
000036	<i>Change to Soil Field Sample Data Sheet</i>	6/10/02	<i>Section 7.1, Appendix C – Site Specific Guidance Document, CSS Primary Structure IFF</i>
000037	<i>Change to Soil Sample Collection Procedure</i>	6/10/02	<i>Section 7.1, Appendix C – Site Specific Guidance Document, CSS Primary Structure IFF</i>
000038	<i>Change to Structure Sketch Procedure</i>	6/29/02	<i>Section 4.3.3.2</i>
000039	<i>Change to Rinsate Preparation Procedure</i>	6/29/02	<i>Section 6.1</i>
000040	<i>Change to Rinsate Sampling Procedure</i>	6/29/02	<i>Section 5.4.2</i>
000041	<i>Change to BD# Assignment Procedure</i>	6/29/02	<i>Section 4.3.3.3</i>
000042	<i>Change to IFF (version 3)</i>	6/29/02	<i>Appendix C – Site Specific Guidance Document, CSS Primary Structure IFF</i>
000043	<i>Change to Secondary Structure IFF Procedure</i>	6/29/02	<i>Section 4.3.3.2</i>

Table of Contents

Modification No.	Description of Deviation	Date Issued	Applicable CSS Section
000044	<i>Change to Equipment Decontamination Procedure</i>	7/15/02	<i>Appendix C - Site Specific SOP for Soil Sample Collection</i>
000045	<i>Change to Sample Packaging Procedure</i>	7/15/02	<i>Section 5.4.6</i>
000046	<i>Non-CSS Modification</i>	--	--
000047	<i>Non-CSS Modification</i>	--	--
000048	<i>Change to IFF (version 4)</i>	7/30/02	<i>Appendix C – Site Specific Guidance Document, CSS Primary Structure IFF</i>
000049	<i>Change to Logbook Completion Procedure</i>	9/5/02	<i>Section 5, Appendix C – SOP 4-1</i>
000050	<i>Change to IFF Completion Procedure</i>	9/5/02	<i>Appendix C - CDM-LIBBY-04</i>
000051	<i>Change to Product Volume Estimation Procedure</i>	9/5/02	<i>Section 4.3.3.1</i>
000052	<i>Change to IFF Distribution Procedure</i>	9/5/02	<i>Section 5-5</i>
000053	<i>Change of Sampling Progress Tracking Procedure</i>	9/5/02	<i>Section 4.3.1.2</i>
000054	<i>Change to Decontamination Procedure</i>	9/5/02	<i>Appendix C - Site Specific SOP for Soil Sample Collection</i>
000055	<i>Change to FSDS</i>	9/9/02	<i>Appendix C - Site Specific Guidance Document, CSS Field Sample Data Sheet for Soil</i>
000056	<i>Change to IFF (version 5)</i>	9/9/02	<i>Appendix C – Site Specific Guidance Document, CSS Primary Structure IFF</i>

Table of Contents

Modification No.	Description of Deviation	Date Issued	Applicable CSS Section
000057	<i>Change to Duplicate Sample Collection Procedure</i>	9/13/02	<i>Appendix C – SOP CDM-LIBBY-05</i>
000058	<i>Creation of Supplemental IFF</i>	9/13/02	<i>Section 4.3.3.1</i>
000062	<i>Change to Soil Sample Preparation Method</i>	11/22/02	<i>Appendix C – SOP ISSI-LIBBY-01</i>



Record of Deviation/ Request for Modification

000062

to the
Libby Sampling and Quality Assurance Project Plan
Field Activities

**Instructions to Requester: Fax to contacts at bottom of form for review and approval.
File approved copy with Data Manager and fax copy to SRC.**

Project QAPP (circle one): PE Study Part a (approved 6/00) b (approval pending), c (approval pending)
Phase I (approved 4/00) Phase II (approved 2/01)
Removal Action (approved 7/00) CSS (approval 5/02)

Scenario No. (circle one): 1 2 3 4 NA

Requester: Dee Warren
Company: CDM

Title: CSS Task Leader
Date: 11-22-02

Description of Deviation:

Update Soil Sample Preparation SOP

Field Logbook and page number deviation is documented on: 100/38 page 93

Reason for Deviation:

modification made to Soil Sample Preparation SOP
ISSI-LIBBY-01

Potential Implications of this Deviation:

None. No adverse impacts anticipated. Modifications to SOP are documented.

Duration of Deviation (circle one):

Temporary

Date(s):

Resident address(es):

Permanent

(complete Proposed Modification Section)

Proposed Modification to SQAPP (attach additional sheets if necessary; state section and page numbers of SQAPP when applicable):

See attached SOP Revision

Technical Review:

David Boland
(Volpe Project Manager or designate)

Date: 11/22/02

Quality Assurance Review and Approval:

L. Schuch
(Quality Assurance Coordinator or designate)

Date: 11/22/02

Approved By:

Wally Guldade
(USEPA OSC or SSC)

Title: Project Chemist

Date: 11/26/02

Wally Guldade 11/26/02 (USEPA EPM or designate)

Date: August 1, 2002
(Rev. 4)

SOP No. ISSI-LIBBY-01

Title: SOIL SAMPLE PREPARATION

Author William Brattin Syracuse Research Corporation^a.

SYNOPSIS: A standardized method for preparation of soil samples for asbestos analysis is described.

Received by QA Unit:

APPROVALS:

TEAM MEMBER	SIGNATURE/TITLE	DATE
<u>EPA Region 8</u>	<u>Mary Goldade</u>	<u>11/12/02</u>
<u>Syracuse Research Corp.</u>	<u>WJB Brattin</u>	<u>11/12/02</u>

Revision Date	Reason for Revision
1/7/99	Incorporation of sieving to the sample preparation.
7/12/00	Revision in sieve size, other minor edits.
5/7/02	Incorporate minor edits
8/1/02	Modify sieving procedure, add grinding step

(a) This SOP was originally prepared by ISSI Consulting Group. ISSI is no longer in existence, and finalization of the SOP was performed by Syracuse Research Corporation (SRC).

TECHNICAL STANDARD OPERATING PROCEDURE

SOIL SAMPLE PREPARATION

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide a standardized method for preparation of soil samples for analysis for asbestos. This procedure will be used by employees of USEPA Region 8 and by contractors/subcontractors supporting USEPA Region 8 projects and tasks at the Libby, Montana site. Site-specific deviations from the procedures outlined in this document must be approved by the USEPA Region 8 Remedial Project Manager or Regional Chemist prior to initiation of the sampling activity.

2.0 RESPONSIBILITIES

The Field Project Leader (FPL) may be an USEPA employee or contractor who is responsible for overseeing the surface soil sampling activities. The FPL is also responsible for checking all work performed and verifying that the work satisfies the specific tasks outlined by this SOP and the Project Plan. It is the responsibility of the FPL to communicate with the Field Personnel regarding specific collection objectives and anticipated situations that require any deviation from the Project Plan. It is also the responsibility of the FPL to communicate the need for any deviations from the Project Plan with the appropriate USEPA Region 8 Remedial Project Manager.

Field personnel performing surface soil sampling are responsible for adhering to the applicable tasks outlined in this procedure preparing surface soil samples.

3.0 EQUIPMENT

- General purpose laboratory oven - must be capable of maintaining a constant temperature of approximately 103-105°C.
- Analytical balance - accurate to 0.1 g, range of 0.1 g to 1000 g
- Jones splitter - to separate the raw field sample into two portions (archive, preparation)
- Riffle splitter - with 1/2 inch chutes to split samples
- Plate Grinder - capable of accepting soil particles of approximately 1/4 inch diameter and grinding to produce particle of approximately 250 um
- Stainless steel or teflon scoop or spoon - for transferring samples
- 1/4 inch stainless steel sieve and catch pan - for coarse sieving samples

TECHNICAL STANDARD OPERATING PROCEDURE

SOIL SAMPLE PREPARATION

- Sample containers - plastic ziplock bags.
- Gloves - for personal protection and to prevent cross-contamination of samples. May be plastic or latex. Disposable, powderless.
- Field clothing and Personal Protective Equipment - as specified in the Health and Safety Plan.
- Field notebook - used to record progress, any problems or observations.
- Permanent marking pen - used to label sample containers.
- Three-ring binder book - binders will contain Soil Preparation Sheets, Field Split Sample Log sheets, and sample labels.
- Trash Bag - used to dispose of gloves and wipes.

4.0 METHOD SUMMARY

Figure 1 provides an overview of the steps in this procedure. Soil samples are dried in a standard laboratory oven and split into a preparation sample and an archive sample. The preparation sample is sieved to separate coarse material ($> 1/4$ inch) from fine material ($< 1/4$ inch). The fine material is ground to a standard particle size of about 250 μm for subsequent analysis for asbestos. The coarse material is examined by stereomicroscopy to determine if any large particles of asbestos are present.

5.0 BULK SOIL DRYING

Prior to drying each sample, record the sample weight on the Sample Preparation Logbook Sheet (provided as Attachment 1).

Set the oven temperature to 103-105 $^{\circ}\text{C}$ (not to exceed 115 $^{\circ}\text{C}$). Check the oven temperature to verify that proper temperature has been reached. Place one or more samples in the oven, each sample contained in its plastic sample bag. Ensure each bag is upright to avoid spillage, and is open at the top to allow moisture to escape. Cover the bags with a layer of cheesecloth to minimize the potential for cross-sample contamination during drying. Leave the samples in the oven overnight or until completely dry. Verify that each sample is dry by testing cohesiveness using a freshly gloved thumb and forefinger. Record the weight after drying on the Sample Preparation Logbook Sheet. Document the sample drying time for each sample on the Soil Preparation Logbook Sheet.

TECHNICAL STANDARD OPERATING PROCEDURE

SOIL SAMPLE PREPARATION

6.0 DIVISION OF ARCHIVE AND PREPARATION SAMPLES

When samples are dry, remove from the oven area and allow to cool in the ventilation area.

Before placing samples in the ventilation area, verify that the hood is turned on.

Completely seal the bag, then knead the contents of the bag to break up any soil clumps.

Thoroughly mix the contents of the bag by turning the bag end-over-end slowly, for a minimum of ten times.

Divide the sample into two parts using a Jones splitter. This must be done in a hood to prevent exposure to any fibers that might be released from the sample into air.

After splitting, one part is used for sample preparation, as described below. The other part is stored as an archive sample for any potential analyses that may be required subsequently.

Identify the archive sample with the same sample label as the original sample.

Decontaminate the Jones splitter between all samples using compressed air. Brush or wipe off any visible material that is not removed by the air blast.

7.0 PREPARATION SAMPLE SIEVING

Weigh the starting mass of each preparation split sample, and record the value in the Soil Preparation Log Sheet.

Sieve each sample using a 1/4 inch stainless steel screen. Whenever possible, immediately process the fine material that passes through the screen in accord with the approach described in Section 8.2 (below). If processing cannot occur immediately, pour the fine material which passed through the sieve into a new plastic sample bag, and mark the outside of the bag with the sample ID, along with the suffix "F" (for "fine fraction").

Pour the material which does not pass through the screen into a new sample bag, and mark the outside of the bag with the sample ID, along with the suffix "C" (for "coarse fraction"). Record the weight of the coarse fraction in the Soil Preparation Log Sheet. If all of the material passes the screen (such that there is no coarse fraction), record a weight of zero for the coarse fraction on the Soil Preparation Log Sheet.

8.0 FINE SAMPLE GRINDING

8.1 Grinder Set-Up

Grinding of the dried and sieved fine soil fraction is achieved using a standard BICO vertical plate grinder. Prior to sample grinding, the plates of the vertical grinder are adjusted to produce a material with a particle size of about 250 um. Verification of proper particle size is determine

TECHNICAL STANDARD OPERATING PROCEDURE

SOIL SAMPLE PREPARATION

by initially processing a sample of quartz sand and ensuring that all material passes through a 60-mesh (250 μ m) screen. This verification of particle size should be checked approximately twice per month to account for potential wear in the plates.

8.2 Grinding of Fine Field Samples

Pass all of the fine sample (that which has passed through the 1/4 inch screen) through the plate grinder. Collect all of the sample as it emerges from the plate grinder in the catch pan. Transfer the ground material into a new ziplock plastic bag. Mark the outside of the bag with the sample ID and the suffix "FG" (for "fine fraction, ground"). Completely seal the bag, then mix by turning the bag end-over-end slowly, for a minimum of ten times.

8.3 Cleaning the Grinder

The catch pan is cleaned using a blast of high pressure air. The catch pan is then set aside and the grinder is cleaned with several blasts of compressed air. Special attention is paid to areas where dust from grinding process is known to accumulate (e.g., between the plates and areas adjacent to the catch pan clamps). The catch pan is then reattached to the grinder. A 20 g sample of quartz sand is then passed through the grinder to clean out any residual soil sample. The quartz sand is thrown out and the grinder subjected to another round of high pressure air blasts. Following this decontamination procedure, the grinder is ready to process the next sample.

9.0 SPLITTING OF THE FINE GROUND SAMPLE

Following the procedures outlined above, the fine ground soil sample should be distributed into a series of four plastic ziplock bags using a riffle splitter.

The following method for splitting a soil sample was adapted from EPA 540-R-97-028 (USEPA, 1997). With the hood turned on, open the sample bag and place the soil onto the splitter tray. Shake the tray to evenly distribute the sample. Place the long lip of the tray against the long lip of the splitter hopper and slowly rotate the tray so that the sample slowly empties into the splitter and slides down the near wall of the hopper to the chutes, collecting the sample in two receiving trays. Tap the sample tray vigorously several times to free any remaining material. Tap the splitter to facilitate the flow of all material through the chutes into the receiving trays. The corners and nooks of the splitter may be cleaned with a coarse nylon brush.

Pour the material from one of the receiving trays into a clean bucket and tap the tray vigorously to assure complete transfer. This portion of fine ground sample is designated for archive. The original sample tray (which is now empty), and the emptied receiving tray should be placed under the splitter as the new receiving trays.

TECHNICAL STANDARD OPERATING PROCEDURE

SOIL SAMPLE PREPARATION

Repeat the process of dispersing the remaining sample material (containing half the mass of the original sample) by shaking the sample tray so that it is uniformly distributed. Repeat the procedure described above for splitting the sample. At the end of the second split, carefully transfer the material from each of the receiving trays into a clean, pre-weighed sample bag to be weighed and packaged for shipment to the analytical laboratory and to W.R. Grace, as directed.

10.0 DOCUMENTATION

Each sample ID must be recorded on the data sheets. Original sample ID numbers are recorded on the Soil Preparation Sheets, and the Field Split Sample Log sheets. When the original sample is split, the original sample ID number, and each new sample, must be recorded.

In addition, a field notebook should be maintained by each individual or team that is preparing samples. For each day that samples are processed, the following information should be collected:

- date
- time
- personnel
- weather conditions
- analytical balance calibration
- drying oven temperature
- descriptions of any deviations to the Project Plan and the reason for the deviation

Field personnel will prepare the proper type and quantity of quality control samples as prescribed in the Project Plan.

11.0 QUALITY ASSURANCE

At least one preparation blank will be processed with each batch of field samples (1 blank in 20 samples). A preparation blank is a bag of clean quartz sand that is subjected to all of the same steps (drying, grinding, splitting) as the field samples. The preparation blank is assigned a random and unique index identification number and is submitted to the laboratory blind. Detection of asbestos fibers in any preparation blank (at the analytical limit of detection) should be taken as a sign of potential cross-contamination, and steps should be taken to identify and address the source of the cross contamination.

One preparation duplicate sample will be processed for every 20 field samples prepared. A preparation duplicate is a second sample of material that is prepared in the same fashion as the primary sample. The material for the preparation duplicate is obtained by using the Jones splitter to divide the preparation sample into two equal sub-parts. The preparation duplicate is assigned a unique and random sample identification number, and is submitted to the laboratory in a blind

TECHNICAL STANDARD OPERATING PROCEDURE

SOIL SAMPLE PREPARATION

fashion. Attachment 2 should be used to record the identity of any field samples that are used to prepare blind splits, along with the random sample number assigned to the split sample.

12.0 DECONTAMINATION

All non-disposable equipment used during sample preparation must be decontaminated prior to use. Stainless steel or teflon scoops or spoons, splitters, sieves and drying trays that are re-used must be decontaminated with compressed air and/or brushing off any residual material, and wiping down with disposable wipes or towels.

If soil particles are visible on any of the equipment, repeat the decontamination procedure until the equipment is clean. All equipment must be dry before it is re-used.

13.0 GLOSSARY

Project Plan - The written document that spells out the detailed site-specific procedures to be followed by the Project Leader and the Field Personnel.

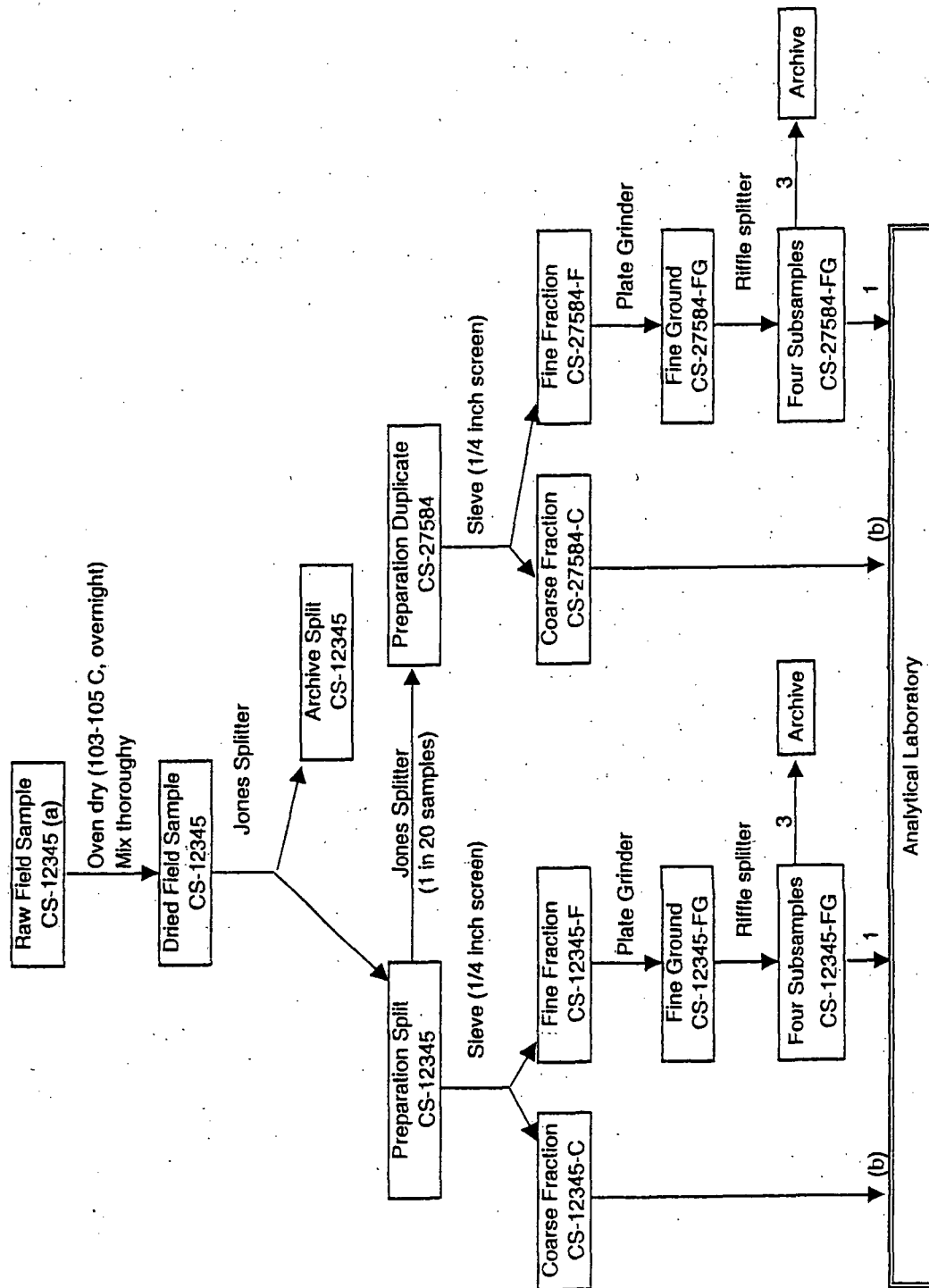
14.0 REFERENCES

American Society for Testing and Materials. 1998. Standard Practice for Reducing Samples of Aggregate to Testing Size, ASTM Designation: C 702 - 98, 4 p.

USEPA. 1997. Superfund Method for the Determination of Releasable Asbestos in Soils and Bulk Materials. EPA 540-R-97-028.

TECHNICAL STANDARD OPERATING PROCEDURE SOIL SAMPLE PREPARATION

FIGURE 1. SOIL SAMPLE PREPARATION FLOW DIAGRAM



(a) Example sample number shown to illustrate naming conventions
(b) Coarse sample will be returned to EPA for archive after laboratory analysis

TECHNICAL STANDARD OPERATING PROCEDURE
SOIL SAMPLE PREPARATION

ATTACHMENT 1

SAMPLE PREPARATION LOGBOOK SHEET

[illegible]

Soil Prep SOP rev 4 v3_mary's.wpd

TECHNICAL STANDARD OPERATING PROCEDURE
SOIL SAMPLE PREPARATION

ATTACHMENT 2

PREPARATION SPLIT LOG SHEET

TECHNICAL STANDARD OPERATING PROCEDURE
SOIL SAMPLE PREPARATION

PREPARATION SPLIT LOG SHEET Number: _____

Date	Prep. Split Sample ID	Original Sample ID	Prepared by	Notes